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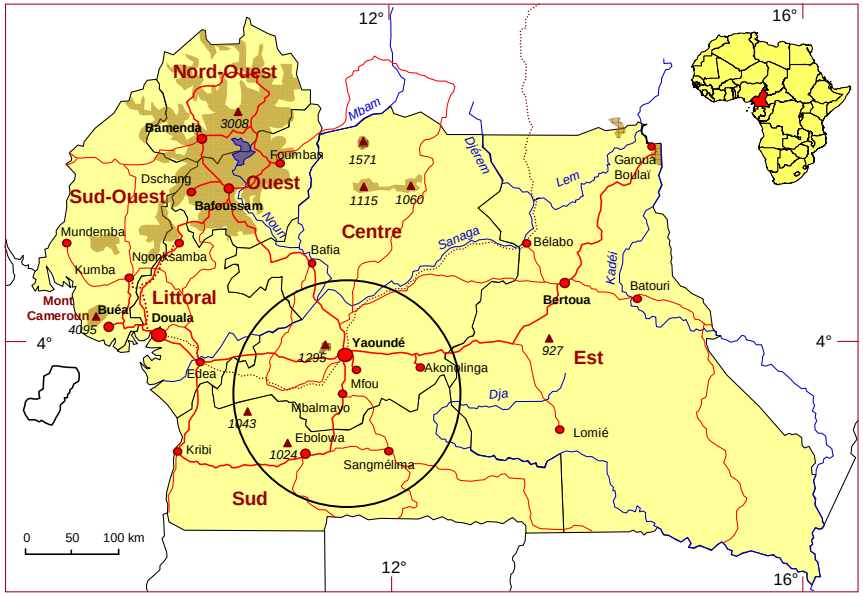
CHARACTERIZATION OF COCOA AGROFORESTRY SYSTEMS AND EVALUATION OF THEIR SUSTAINABILITY: THE CASE OF CENTER CAMEROON



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INTRODUCTION 1/1

(i) The oldest cocoa production region of Cameroon is the Center-South basin where cocoa trees are usually grown with many forest and fruit trees species (Shannon index value around 3).

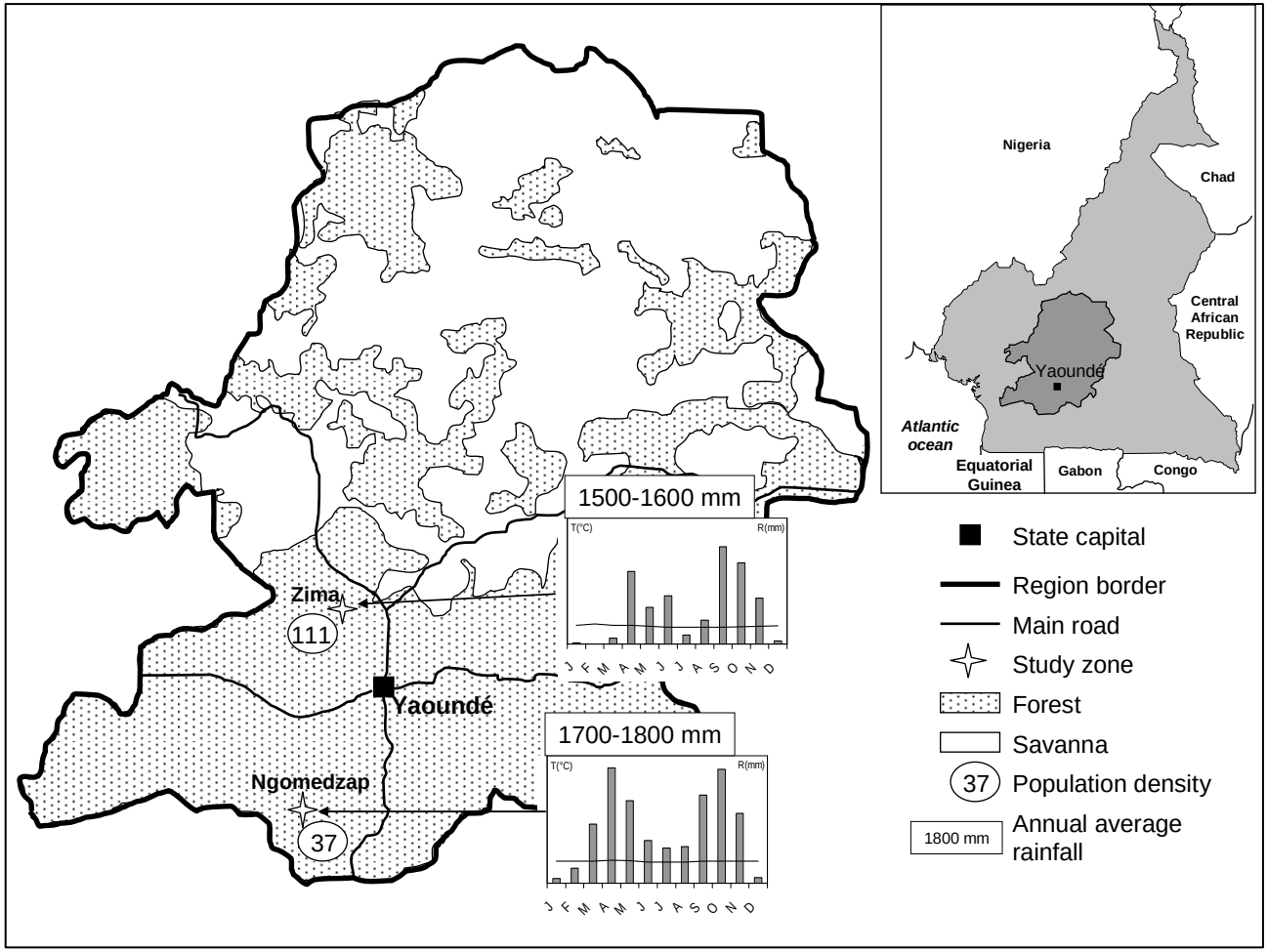
(ii) A large part of the cocoa orchard contains very old, yet still active, cocoa plots, contrary to what is commonly thought.

(iii) In fact, one usually consider that cocoa cultivation is characterized by a permanent movement of production zones due to difficulties for farmers to replant their old cocoa plantations after 30-40 years.

<u>Lack of sustainability of the main cocoa cropping systems whose level of agrodiversity is usually low.</u>

MATERIALS AND METHODS 1/2

Study zones



MATERIALS AND METHODS 2/2

Experimental design

Datas collected

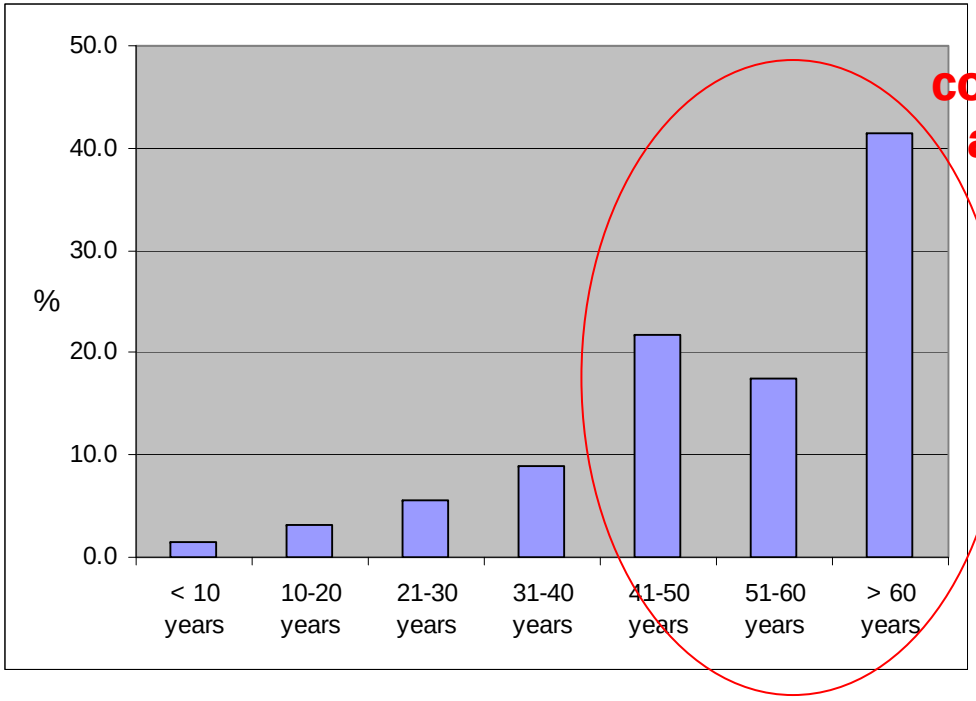
Survey (2003) in 742 cocoa farms ⇨ Importance of cocoa agroforestry systems in the crop rotation and in the revenue of the farmers

1142 cocoa plantations ⇨ age, technical management

316 cocoa plantations (stable area) ⇨ Cocoa density and fermended dried cocoa yields

RESULTS 1/4

Oldness of the cocoa agroforestry systems of Center Cameroon



81 % of cocoa plantations are more than 40 years old

Distribution of cocoa plantations per age category (first plantings). Study involving 1142 cocoa plantations of Zima and Ngomedzap study zones.

RESULTS 2/4

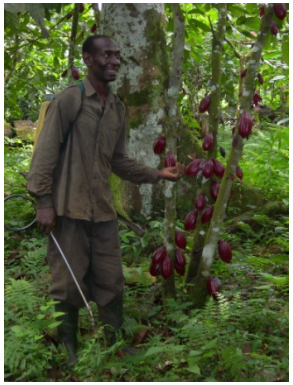
Importance of cocoa agroforestry systems for farmers

Study zones	Farmed area (ha)	Cocoa area (ha)	%	Total farm Income (CFA F)	Cocoa income (CFA F)	%
Zima	6,1 (± 3,71)*	3,8 (± 2,58)	**62**	1 019 936 (± 762 114,41)	778 419 (± 542 339,55)	**76**
Ngomedzap	6,8 (± 4,10)	4,1 (± 2,78)	**60**	742 149 (± 839 744,10)	572 289 (± 431 681,80)	**77**

* Standard deviation

Old cocoa agroforestry systems remain the economical and social basis of the farms

RESULTS 3/4



Cocoa agroforestry systems management

No chemical fertilization

Study zones	Cost of the chemical inputs per hectare (CFA F)	
	Mirid control	Black pod control
Zima	4 332 (± 3 217.04)	14 906 (± 13 588.29)
Ngomedzap	5 096 (± 3_152.64)	14 047 (± 9 777.22)

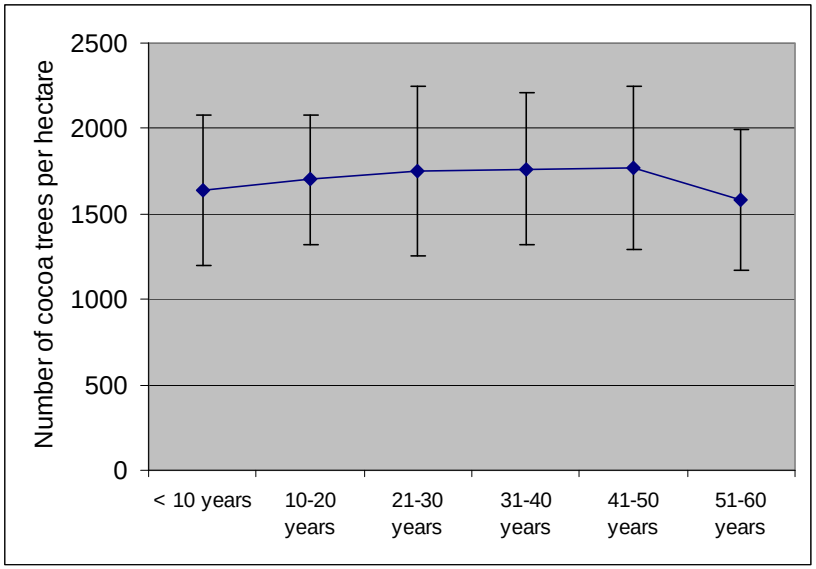
Cocoa phytosanitary protection is 5 times cheaper than the usual recommendations

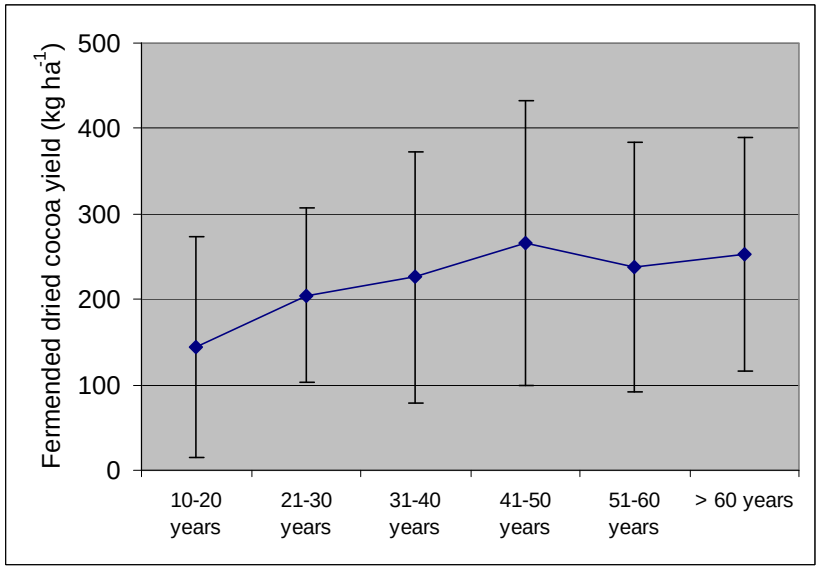
Regeneration methods allow a progressive renewal of the orchards

Study zones	Cocoa regeneration methods (% of farmers)	
	Replantation of cocoa plantations	Rejuvenation of cocoa trees
Zima	94.3	45.8
Ngomedzap	89.1	70.1

RESULTS 4/4

Evaluation of the sustainability of the cocoa agroforestry systems





Study involving 742 cocoa plantations of Zima and Ngomedzap study zones

Density of cocoa trees and cocoa yields are remarkably stable for the long term

CONCLUSION 1/1

(i) Our study confirms the sustainability of the cocoa agroforestry systems of Centre Cameroon.

(ii) The existence of very old and still active cocoa agroforests shows that another cocoa cultivation model is possible and different from the one usually recommended to the farmers, mainly based on a low level of biodiversity and an intensive management of cocoa trees.

(iii) These cocoa agro-forestry systems can certainly be improved to guarantee a better income to the farmers. However they offer a strong alternative to the problem of the conversion of cocoa cropping systems based on the development of pioneer fronts towards more stable and viable cocoa cropping systems.